

SECTION 07620

SHEET METAL FLASHING AND TRIM

LANL MASTER CONSTRUCTION SPECIFICATION

When editing to suit project, author shall add job specific requirements and delete only those portions that in no way apply to the activity (e.g., a component that does not apply). To seek a variance from applicable requirements, contact the LEM discipline POC.

When assembling a specification package, include applicable specifications from all Divisions, especially Division 1, General Requirements.

Delete information within “stars” during editing.

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Furnishing and installing sheet metal flashing and trim.

1.2 SECTION DOES NOT INCLUDE

- A. Flashing integral with membrane roofing or waterproofing systems (base flashing).
- B. Flashing integral with prefabricated roof accessories and equipment.
- C. Wood blocking, nailers, edge strips, and battens.

1.3 SUBMITTALS

- A. Submit the following in accordance Section [01300](#), Submittals:
 - 1. Catalog Data: Submit manufacturer’s material and finish data, installation instructions, and general recommendations for each specified flashing material and fabricated product.
 - 2. Samples for Initial Selection Purposes: Submit manufacturer’s color charts and texture variations for specified sheet materials to be exposed as finished surfaces.
 - 3. Certification: Provide written certification that materials used are asbestos-free and lead paint-free.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: Engage an experienced installer who has completed flashing, sheet metal, and trim work similar in material, design, and extent to that indicated for project that have resulted in construction with a record of successful in-service performance.
- B. Quality Standard: Fabricate and install sheet metal work in accordance with Sheet Metal and Air Conditioning Contractor's National Association, Inc. (SMACNA) "Architectural Sheet Metal Manual," unless specifically indicated otherwise.
- C. Wind Resistance: Fabricate and install flashings at edges of roof in accordance with FM Loss Prevention Data Sheet 1 - 49 for specified wind zone. Ensure that substrate construction is also in compliance.

1.5 QUALIFICATIONS

- A. Fabricator and Installer: Company specializing in sheet metal work with minimum 6 years documented experience.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Comply with Section [01600](#), Materials and Equipment.
- B. Stack material to prevent twisting, bending, and abrasion, and to provide ventilation. Slope metal sheets to ensure drainage.
- C. Prevent contact with materials causing discoloration or staining.
- D. White rust on galvanized metal is not allowed.

PART 2 PRODUCTS

2.1 PRODUCT OPTIONS AND SUBSTITUTION

- A. Comply with Section [01630](#), Product Options and Substitutions.

2.2 MANUFACTURERS

- A. Products made by the following manufacturers will be among those considered acceptable, however, the Contractor is responsible to provide only products compatible with adjacent materials in the assembly.
 - 1. ATAS Aluminum Corporation.
 - 2. Copper Sales, Inc.
 - 3. Fry Reglet Corporation.

4. Keystone Flashing Company.
5. MM Systems Corporation.
6. Petersen Aluminum Corporation.
7. Vincent Metals.

2.3 MATERIALS

- A. General: Unless otherwise indicated in Contract documents, provide Aluminum-Zinc Alloy-Coated Steel Sheet, as standard material with a fluoropolymer “Kynar 500” or “Hylar 5000” factory finish.

The designer may select to specify one of the following roof covering materials instead of the standard material identified above.

*****[OR]*****

- B. Galvanized Steel Sheet: ASTM A526, G90, commercial quality, or ASTM A527, G90, lock-forming quality, hot-dip galvanized steel sheet with 0.20 percent copper.

1. Finish: Mill phosphatized (paint-grip).
2. Color: Selected from manufacturer’s standard color selection at time of submittals.

*****[OR]*****

- C. Aluminum-Zinc Alloy-Coated Steel Sheet: ASTM A792, Class AZ-50 coating, grade 40, or to suit project conditions, with 55 percent aluminum, not less than 0.0336 inch thick, unless otherwise indicated.

1. Finish:
 - a. Mill finish.
 - b. Coil-Coated Fluoropolymer Factory Finish “Kynar 500” or “Hylar 5000.”
2. Color: Selected from manufacturer’s standard color selection at time of submittals.
3. Provide strippable plastic protective film on prepainted surfaces.

*****[OR]*****

- D. Preprinted Coil-Coated Galvanized Steel Sheet: Zinc-coated, commercial quality steel sheet conforming to ASTM A755, G90 coating designation, coil-coated with high performance fluoropolymer coating.

1. Finish: Coil-coated factory finish “Kynar 500” or “Hylar 5000.”

2. Color: Selected from manufacturer's standard color selection at time of submittals.
 3. Provide strippable plastic protective film on prepainted surfaces.
- E. Aluminum: ASTM B209, Alloy 3003, Temper H14, AA-C22A41 [bronze anodized or painted] finish, 20 gage.

2.4 REGLETS

- A. General: Units of type, material, and profile indicated, formed to provide secure interlocking of separate reglet and counterflashing pieces and compatible with flashing indicated.
- B. Surface Mounted Type: Provide with slotted holes for fastening to substrate, with neoprene or other suitable weatherproofing washers, and with channel for sealant at top edge.
- C. Stucco Type: Provide with upturned fastening flange and extension leg of length to match thickness of applied finish materials.
- D. Concrete Type: Provide temporary closure tape to keep reglet free of concrete materials, special fasteners for attaching reglet to concrete forms, and guides to ensure alignment of reglet section ends.
- E. Masonry Type: Provide with offset top flange for embedment in masonry mortar joints.
- F. Counter flashing Wind-Restraint Clips: Provide hold down clips with 1/2 inch kickout to be installed before counterflashing to prevent wind uplift on the counterflashing lower edge. Fabricate the clips of the following materials:
1. Galvanized Steel: 22 gage; 0.0336 inch thick.

2.5 MISCELLANEOUS MATERIALS AND ACCESSORIES

- A. Solder: For use with steel, furnish lead-free solder complying with ASTM B32, Alloy Grade.
- B. Soldering Flux: FS O-F-506, Type I, Form A (acid type).
- C. Fasteners: Same metal as sheet metal flashing or other noncorrosive metal as recommended by sheet metal manufacturer. Match finish of exposed heads with material being fastened. All exposed fasteners to be #8 or larger with an integral washer and neoprene gasket or
- D. Mastic Sealants: Polyisobutylene; Nonhardening, nonskinning, nondrying, nonmigrating sealant or Sealant and Fasteners: For metal work, provide the type sealant and fasteners recommended by the producer of the metal sheets for fabrication and installation.

- E. Metal Accessories: Provide sheet metal clips, straps, anchoring devices, and similar accessory units as required for installation of work, matching or compatible with material being installed; Noncorrosive; Size and thickness required for performance.
- F. Installation Accessories: Provide joint tape, adhesives, sealers, and fasteners as recommended by flashing manufacturer for indicated applications.
- G. Bituminous Coating: FS TT-C-494, MIL-C-18480, or SSPC Paint 12, cold-applied bituminous mastic, compounded for 15-mil dry film thickness coating.
- H. Roofing Cement: FS SS-C-153, Type I, asphaltic.
- I. Roofing Felt: ASTM D226, 15 pound type, asphaltic, unperforated.

2.6 FABRICATION, GENERAL

- A. Sheet metal fabrication standard: Fabricate sheet metal flashing and trim to comply with recommendation of SMACNA's "Architectural Sheet Metal Manual" that apply to the design, dimensions, metal and other characteristics of the item indicated.
- B. Comply with details shown to fabricate sheet metal flashing and trim that fit substrates and result in waterproof and weather resistant performance once installed. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.
- C. Form exposed sheet metal work that is without excessive oil canning, buckling, and tool marks and that is true to line and levels indicated, with exposed edges folded back to form hems.
- D. Seams: Fabricate nonmoving seams in sheet metal flat-lock seams.
- E. Sealed Joints: Form nonexpansion, but movable joints in metal to accommodate elastomeric sealant to comply with SMACNA standards.
- F. Expansion Provisions: Space movement joints at maximum of 10 feet with no joints allowed within 24 inches of corner or intersection. Where lapped or bayonet-type expansion provisions in work cannot be used or would not be sufficiently weatherproof and waterproof, form expansion joints of intermeshing hooked flange, not less than 1 inch deep filled with mastic sealant concealed within joints.
- G. Separate metal from noncompatible metal or corrosive substrates by coating concealed surfaces at locations of contact with asphalt mastic or other permanent separation as recommended by manufacturer.
- H. Conceal fasteners and expansion provisions where possible. Exposed fasteners are only allowed on faces of sheet metal exposed to public view with direct approval of LANL Construction Inspector or as part of an exposed fastener roof system.

- I. Fabricate cleats and attachment devices from same material as sheet metal component being anchored or from compatible, noncorrosive metal recommended by SMACNA or sheet metal manufacturer.
 - 1. Size as recommended by SMACNA manual or sheet metal manufacturer for application but never less than thickness of metal being secured.
- J. Form a 1/2 inch hem on underside of exposed edges.

2.7 SHEET METAL FABRICATIONS

- A. As a minimum, fabricate flashings using materials in the thickness listed for each flashing application.
- B. Exposed Flashings-Low Slope Roofs or Waterproofing: Formed copings, gravel stops and scuppers:
 - 1. Galvanized Steel Sheet: 24 gage (0.0276 inch).
 - 2. Aluminum-Zinc Alloy-Coated Steel Sheet: 24 gage (0.0276 inch).
 - 3. Preprinted Coil-Coated Galvanized Steel Sheet: 24 gage (0.0276 inch).
- C. Semiconcealed Flashings-Low Slope Roofs or Waterproofing: Counter flashing, reglets, equipment support flashing, roof area joint and roof expansion joint covers and pipe/conduit penetration flashing:
 - 1. Galvanized Steel Sheet: 24 gage (0.0276 inch).
 - 2. Aluminum-Zinc Alloy-Coated Steel Sheet: 24 gage (0.0276 inch).
 - 3. Preprinted Coil-Coated Galvanized Steel Sheet: 24 gage (0.0276 inch).
- D. Miscellaneous Flashings:
 - 1. Galvanized Steel Sheet: 24 gage (0.0276 inch).
 - 2. Aluminum-Zinc Alloy-Coated Steel Sheet: 24 gage (0.0276 inch).
 - 3. Preprinted Coil-Coated Galvanized Steel Sheet: 24 gage (0.0276 inch).

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions under which sheet metal flashing and trim are to be installed and verify that work may properly commence. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.
- B. Isolate dissimilar metals by means of a heavy bituminous coating, approved paint coating, adhered polyethylene sheet, or other means approved by the LANL Construction Inspector.

3.3 INSTALLATION

- A. General: Unless otherwise indicated, install sheet metal flashing and trim to comply with performance requirements, manufacturer's installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Anchor units of work securely in place by methods indicated, providing for thermal expansion of metal units. Conceal fasteners where possible, and set units true to line and level as indicated. Install work with laps, joints, and seams that will be permanently watertight and weatherproof.
- B. Install exposed sheet metal work that is without excessive oil canning, buckling, and tool marks and that is true to line and levels indicated, with exposed edges folded back to form hems. Install sheet metal flashing and trim to fit substrates and to result in waterproof and weather-resistant performance. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.
- C. Soldered Joints: Clean surfaces to be soldered, removing oils and foreign matter. Pretin edges of sheets to be soldered to a width of 1-1/2 inches except where pretinned surface would show in finished work. Do not solder prepainted, coil-coated, galvanized steel sheets.
- D. Interlocking joints/slip joints where flashing and trim shall be 10 feet max pieces interlocked in a 6 inch lap and filled with mastic, with joints 2 feet from corners and intersections.
- E. Sealed Joints: Form non-expansion, but moveable joints in metal to accommodate elastomeric sealant to comply with SMACNA standards. Fill joints with sealant and form metal to completely conceal sealant.

1. Use joint adhesive for nonmoving joints specified not to be soldered.
2. Moving Joints: When ambient temperature is moderate (40 - 70 degrees F) at time of installation, set joined members for 50 percent movement either way. Adjust setting position of joined members proportionally for temperatures above 70 degrees.
3. Do not install sealant at temperatures below 40 degrees F. Follow Section 07900 for handling and installation requirements for joint sealers.

NOTE: Sheet metal expands at a rate of 1 inch plus per 100 lineal feet.

- F. Counter flashings: Coordinate installation of counterflashings with installation of assemblies to be protected by counterflashing. Install counterflashings in reglets or receivers. Secure in a waterproof manner by means of snap-in installation and sealant,

lead wedges and sealant, interlocking folded seam, or blind rivets and sealant. Lap counterflashing joints a minimum of 2 inches and bed with sealant.

- G. Roof Edge Flashings: Secure metal flashings at roof edges to comply with FM Loss Prevention Data Sheet 1-49 for Zone 2 wind exposure.
- H. Surface-Mounted Reglets: Attach reglets securely to substrate, at locations indicated. Install elastomeric sealant at top edge.

3.4 CLEANING AND PROTECTION

- A. Remove protective film from prefinished sheet metal immediately after installation.
- B. Repair or replace work which is damaged or defective, as directed by LANL Construction Inspector. Refinish marred and abraded areas of prefinished sheet using manufacturer's recommended methods. Replace units that cannot satisfactorily be refinished in place.
- C. Clean exposed metal surfaces, removing substances that might cause corrosion of metal or deterioration of finishes.
- D. Provide final protection and maintain conditions that ensure sheet metal flashing and trim work during construction is without damage or deterioration other than by natural weathering.

3.5 ADJUSTING AND CLEANING

- A. Review completed work for accuracy of installation and neatness of installation. Adjust the work as required to present smooth and straight surfaces and lines.
- B. Clean exposed surfaces of dirt, acid flux, excess solder, or foreign material.

END OF SECTION